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0902/6918

09/30/20

- ☒ This application has been examined ☐ Responsive to communication filed on _____ ☐ This action is made final.

A shortened statutory period for response to this action is set to expire Three (3) month(s), day from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- | | |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited by Examiner, PTO-892. | 2. <input checked="" type="checkbox"/> Notice re Patent Drawing, PTO-948. |
| 3. <input type="checkbox"/> Notice of Art Cited by Applicant, PTO-1449. | 4. <input type="checkbox"/> Notice of Informal Patent Application, Form PTO-152 |
| 5. <input type="checkbox"/> Information on How to Effect Drawing Changes, PTO-1474. | 6. <input type="checkbox"/> _____ |

Part II SUMMARY OF ACTION

1. ☒ Claims 1-31 are pending in the application.
Of the above, claims _____ are withdrawn from consideration.
2. ☐ Claims _____ have been cancelled.
3. ☒ Claims 1; 25-29 are allowed.
4. ☒ Claims 2,3; 4-11; 12-29; 30,31 are rejected.
5. ☐ Claims _____ are objected to.
6. ☐ Claims _____ are subject to restriction or election requirement.
7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.
8. ☐ Formal drawings are required in response to this Office action.
9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice re Patent Drawing, PTO-948).
10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).
11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).
12. ☐ Acknowledgement is made of the claim for priority under U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.
13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.
14. ☐ Other

Art Unit: 2817

The disclosure is objected to because of the following informalities: Page 5, line 1, note that "closely wound helical" appears to be an incomplete recitation (i.e. "~~helical~~" what?). Page 6, line 5, note that ~~--capacitor--~~ should be inserted prior to "304" and ~~--resistor--~~ should be inserted prior to "305"; line 6, note that "note" should be correctly rewritten as ~~--not--~~; line 30, note that ~~--by the arrow--~~ should follow "indicated". Page 9, line 32, note that ~~--such as capacitor--~~ should be inserted prior to "805" and ~~--resistor--~~ should be inserted prior to "806".

Appropriate correction is required.

The disclosure is objected to because of the following informalities: Note that the following reference labels appearing in the correspondingly cited figure need to be explicitly described in the specification's description thereof: fig. 2 (~~i~~); figs. 4, 5, 6 (1, 2, 3, 4); figs 4, 6 (Z); fig. 7 (701, 702, 703, 704).

Appropriate correction is required.

The drawings are objected to because in fig. 3, note that "stripline 301" does not appear to be properly cross-hatched as a conductive material. Correction is required.

Claims 2, 3; 4-11; 12-24; 25-29; 30, 31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2, 3, note that recitation "at least one ~~h~~ forward coupler, and at least one reverse coupler" is vague and indefinite as to the relationship of these features relative to the claimed "device". Clarification is needed.

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In claim 4, note that the recitation “for coupling radio frequency (RF) energy” appears incomplete (i.e. coupling RF energy to where?), thus rendering this aspect vague and indefinite. Similarly, note that “for providing isolation” appears to be an incomplete recitation (i.e. isolation relative to/from what?). Clarification is needed.

In claim 12, it is unclear if the recited function of the respective ground layers of “isolating” the “at least one transmission line” and the corresponding “connecting structure” is correct. If such a function is correct as recited, then it would appear that the previously recited RF coupling between the “at least one transmission lines” and the respective “connecting structure” would be prevented. Clarification ^{on} is needed. Note ^{that} ~~and~~ it is unclear which one of the “at least one transmission lines” is intended by the recited “the transmission line”.

In claim 18, note that since this claim recites the same subject matter as claim 17, from which it directly depends, this claim appears to be redundant. Clarification is needed.

In claim 20, note that it is unclear which “secondary structures” of which “plurality of connecting structures”

(i.e. first or second?) is intended by this claim.

In claim ~~23~~, note that “the plurality of plurality...” is vague in meaning.

In claim 24, note that “the third substrate” lacks strict antecedent basis.

In claim 25, note that “(above/below) plane” is vague in meaning. Moreover, it is unclear which one of the “at least one transmission lines” is intended by “the transmission line”. Note that it is unclear what relationship exists between the “at least one magnetic field coupling

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structure” and the previously recited “at least one magnetic field coupling device” (e.g. same as, different from, etc.).

In claim 30, note that it is unclear which one of the “at least one transmission lines” is intended by the recited “the transmission line”.

In claim 31, note that it is unclear whether “of variable length” is a proper characterization. Note that from the specification, that the lengths do not actually vary, but can be of different length.

The following claims have been found objectionable for reasons set forth below.

In claim 1, note that “aforementioned” should be rewritten as --said--.

In claims 1, 4, 12, note that “form” should be rewritten as --provide--.

In claim 11, note that “is” should be rewritten as --are-- to provide a consistent tense.

In claim 12, line 2, note that --applied thereto-- should follow “RF energy”; line 4, note that “on” should correctly be --one--.

In claims 13, 14, 15, 28, 29, note that --the-- should precede “first” and “second”.

In claims 15, 29, note that --a respective stripline-- appears to be the proper characterization.

In claims 16, 17, 18, note that --secondary structure-- should follow “each” and --the-- should precede “helix”.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless --

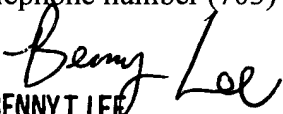
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 30, 31 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Peter.

Peter discloses a directional coupler having a central transmission line having a helix structure (20) surrounding the transmission line. As can be seen from fig. 2, a plurality of "secondary" impedance matching structures (of different length in fig. 3) (e.g. 34) are arranged parallel to the transmission line.

Tajima et al and Willems pertain to interleaved couplers. Budka et al is a multi-layer coupler.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (703) 308-4902.


BENNY T. LEE
PRIMARY EXAMINER
ART UNIT 2817

Lee/dc

August 30, 2000